

## SEMESTER – I

### Allied Practical – MATHEMATICAL SOFTWARE - I

Instructional Hrs.: 30

Sub. Code: 16MSUAP01

Max. Marks: CIA – 10; ESE – 15

Credit: 1

**Objective:** The aim of this paper is to teach statistical software to the students, which is mainly skill – oriented, job – oriented and research oriented. At the end of the course, the students will be able to (i) create data base (ii) present the data (iii) analyze the data using statistical tools.

#### List of Practical

1. Using R software as a calculator.
2. Data entry, manipulation and retrieval (Notepad, Excel sheet).
3. Data frame, creating matrices.
4. Descriptive statistics, Graphics - pie diagram, box plot, histogram, bar plot.
5. Object orientation, defining functions.
6. To find mean, median, geometric mean, harmonic mean of numerical data and edit the output.
7. To determine standard deviation, variance and checking the consistency of the given data and edit the output.
8. Bivariate data- scatter plot, correlation co-efficient, fitting linear regression line.
9. Multiple linear regression models.
10. Computation of probabilities in various distributions.(Binomial, Poisson, Normal)
11. Drawing the graph of probability mass and density functions.
12. One and two sample 't' test and paired 't' test.

**SEMESTER – III**  
**PART III – ALLIED**  
**MATHEMATICS FOR COMMERCE**

**Instructional Hrs. : 90**

**Sub. Code: 16MAUA303**

**Max. Marks: CIA – 25; ESE – 75**

**Credits: 5**

**Objective:** The objective is to provide basic knowledge of mathematics and its applications to business situations.

**UNIT I** **18 Hrs.**

**Number System :** Introduction – Natural Number System – Highest Common Factor – *Least Common Multiple* – Progression – Arithmetic Progression – Arithmetic mean – Geometric Progression – Geometric Mean – Ratios – Proportion – Mixtures.

**Unit II** **18 Hrs.**

**Matrices :** Introduction – Types of matrices – Algebra of matrices – Transpose of a matrix – Determinants – Inverse of a matrix – Solution of simultaneous equations – *Rank of a matrix*.

**Unit III** **18 Hrs.**

**Mathematics of Finance :** Simple Interest – Compound Interest – Effective and Nominal Rate of Interest – *depreciation* – Annuities .

**Unit IV** **18 Hrs.**

**Discounting of Bills :** Sinking fund – Amortization table – Discounting – Banker's Discount – True Discount – *Banker's Gain* – cash value – Actual Rate of interest – Equated Due Date.

**Unit V** **18 Hrs.**

**Applications of Differentiation :** Introduction to differentiation – Elasticity – Elasticity of Demand – Elasticity of supply – Marginal cost and Marginal Revenue. *Relation between Marginal Revenue & Elasticity of Demand* – Maxima and Minima.

**Applications of Integration:** Introduction to Integration – Calculation of cost function – *Calculation of Revenue function*.

## Case Studies:

- Calculate Secondary overhead distribution summary using Simultaneous Equations method.
- Preparation of Bank statement.
- Applications of matrix in Business Problems.
- Develop an Amortization table for Loan amount – EMI calculation.
- Obtain the revenue function for  $x$  units of sales & find the marginal revenue.

**Note:***Italics denote Self Study topics.*

## TEXT BOOKS

1. **M.Wilson***Business Mathematics*, Himalaya Publishing House, Reprint 2016.(For units I, II and V)
2. **P.A. Navnitham**, *Business Mathematics & Statistics*, Jai Publishers, 2017. (For units III and IV)

## REFERENCE BOOK

1. **B.C.Mehta and G.M.K. Madnani**, *Mathematics for Economists*, Sultan Chand and Sons, Reprint 2004.
- Question paper setters are asked to confine to the above **text books** only.